

# A New Variety of *Pandanus* and a New Species of *Fimbristylis* from the Central Pacific Islands. Pacific Plant Studies No. 11<sup>1</sup>

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## INTRODUCTION

SINCE 1945 THE WRITER has made three expeditions to the small islands of the Central Pacific. The first, in 1945, was backed by the University of Hawaii; the second, in 1946, by the University of Hawaii and the Pacific Science Board; the third, in 1949, by the Donaldson Expedition of the Atomic Energy Commission. On these trips a number of novelties were collected which are worth putting on record.

## PANDANACEAE

*Pandanus odoratissimus* L. f. var. *novo-caledonicus* (Martelli) comb. nov. *P. tectorius* Parkinson var. *novo-caledonicus* Martelli, *Webbia* 4(2): 412–413, 1914; 4(1): 34, table 12, figs. 1–2, 1913.

Marshall Islands: Eniwetok Atoll, Runit Islet, s. e. islet of, in thicket on coral sand, 3 m. alt., tree 8 m.  $\times$  3 dm., Aug. 15, 1949, *St. John* 23,840.

*Pandanus odoratissimus* L. f. var. *novo-guineensis* (Martelli), St. John, *Pacific Sci.* 5(3): 280, 1951.

Marshall Islands: Eniwetok Atoll, Rujoru Islet, in scrub forest on coral sand, 4 m. alt.,

tree 8 m.  $\times$  2 dm., Aug. 13, 1949, *St. John* 23, 811; Runit, s.e. isthmus, on sand with low *Scaevola frutescens*, 2 m. alt., only one tree 7m.  $\times$  2 dm., Aug. 15, 1949, *St. John* 23,842; also on Aniyaanii Islet, *St. John* 23,715; and Rigili Islet, *St. John* 23,753.

## CYPERACEAE

*Fimbristylis atollensis* St. John sp. nov.  
§ *Dichelostylis*. Figs. 1, 2.

DESCRIPTIO TYPI: Perennis caespitosa, culmis 25–38 cm. altis erectis striatis angulosis compressis laevibus glabris 0.3–1.2 mm. latis, foliis omnibus basilaribus pluribus congregatis adscendentibus divergentibusve, eis plantarum maturarum  $\frac{1}{3}$  ad  $\frac{1}{2}$  longis quam culmas, foliis 4–14 cm. longis 0.6–1.2 mm. latis pallide viridibus coriaceis rigidibus, pagina superiora infra media late canaliculata supra minus canaliculata et ad apicem plana, marginibus minute remoteque adpresse apiculato-serrulata, apice irregulariter obliqueque truncato et grande apiculato-serrulato, inflorescentiis decompositis, bracteis tribus inferioribus glabris laminiferis 5–15 mm. longis quam spicas sessiles longioribus, radiis 5–8 valde inaequalibus 0.2–4.0 cm. longis laevibus compressis in utrinque latere valde 4–5-angulosis circa 45° adscendentibus, brevioris simplicibus in apice 1, 2, vel 3 spiculis sessilibus gerentibus, longioribus compositis in apice plerumque 3 spiculis gerentibus mediale sessile, spiculis lateralibus sessilibus subsessilibus vel pedunculo ad 4 mm. longo affixis etiam 2–4 radiolis 3–18 mm. longis gerentibus eis cum 3 (vel 2) spiculis sessilibus terminalibus, bracteolis pluribus stramineis exteriore laminifera sed quam

<sup>1</sup>This is the eleventh in a series of papers designed to present descriptions, revisions, and records of Pacific island plants. The preceding papers were published as: *Bernice P. Bishop Mus., Occas. Papers* 17(7), 1942; 17(13), 1943; 18(5), 1945; *Amer. Fern Jour.* 35: 87–89, 1945; *Torrey Bot. Club, Bul.* 73: 588, 1946; *Pacific Sci.* 1(2): 116, 1947; 2(2): 96–113, 1948; 2(4): 272–273, 1948; 5(3): 279–286, 1951; *Webbia* 8: 225–228, fig. 1, 1951.

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FIG. 1. *Fimbristylis atollensis* St. John, circles on known localities.

spiculam brevior, spiculis 3–7 mm. longis 1.3–1.8 mm. latis ovoideis vel lanceo-ovoides acutis, rhachillis cum alis transversalibus 0.5 mm. longis brunneis ellipticibus margine scarioso, cicatricibus lunatis, glumis spiralibus imbricatis 1.5–1.7 mm. longis rhomboideo-suborbicularibus glabris lucidis brunneis marginibus superioribus protrudentibus albis hyalineis, carina crassa paene ad apicem prominente, nervis lateralibus 2–4 uno latere approximatis longituditer parallis brevibus inconspicuis, staminibus 2, filamentis 1.2 mm. longis ligulatis hyalineis, antheris 0.5–0.6 mm. longis oblongo-linearibus subacutis, stylo glabro 0.5–0.8 mm. longo in basi dilatato conico, stigmatibus 2 divergentibus 0.7–0.9 mm. longis filiformibus, achaeneis 0.5–0.6 mm. longis turbinatis crasse plano-convexis laevibus sine striatis obscure fuscis basi truncata apice lato subtruncato, latere convexo rotundato.

DESCRIPTION OF ALL SPECIMENS: Densely caespitose perennial; stems 25–60 cm. tall,

erect, angular striate, compressed and flattened throughout, the surface smooth and glabrous, 0.3–1.3 mm. wide; leaves all basal, several, crowded, ascending or later diverging, those of mature clumps  $\frac{1}{4}$ – $\frac{2}{3}$  the length of the culms, 2–38 cm. long, 0.5–2.8 mm. wide, pale green, coriaceous, rigid, the upper side wide-channeled below the middle, above the middle more shallowly so and towards the tip flat, the margin minutely and remotely apiculate appressed serrulate, the apex irregularly obliquely truncate and coarsely apiculate serrulate; inflorescence decompose; the 3 or 4 lower bracts glabrous blade-bearing 5–30 mm. long, exceeding the 1–3 central sessile spikes; rays 3–8 in number, very unequal 0.2–4.0 cm. long, smooth, flattened with 4–5 strong angles on a side, ascending at about 45° to the axis, the shorter ones simple, bearing at their tips 1, 2, or 3 sessile spikelets; the longer rays compound, bearing at their apices mostly 3 spikelets, the central one sessile, the lateral ones sessile, subsessile,



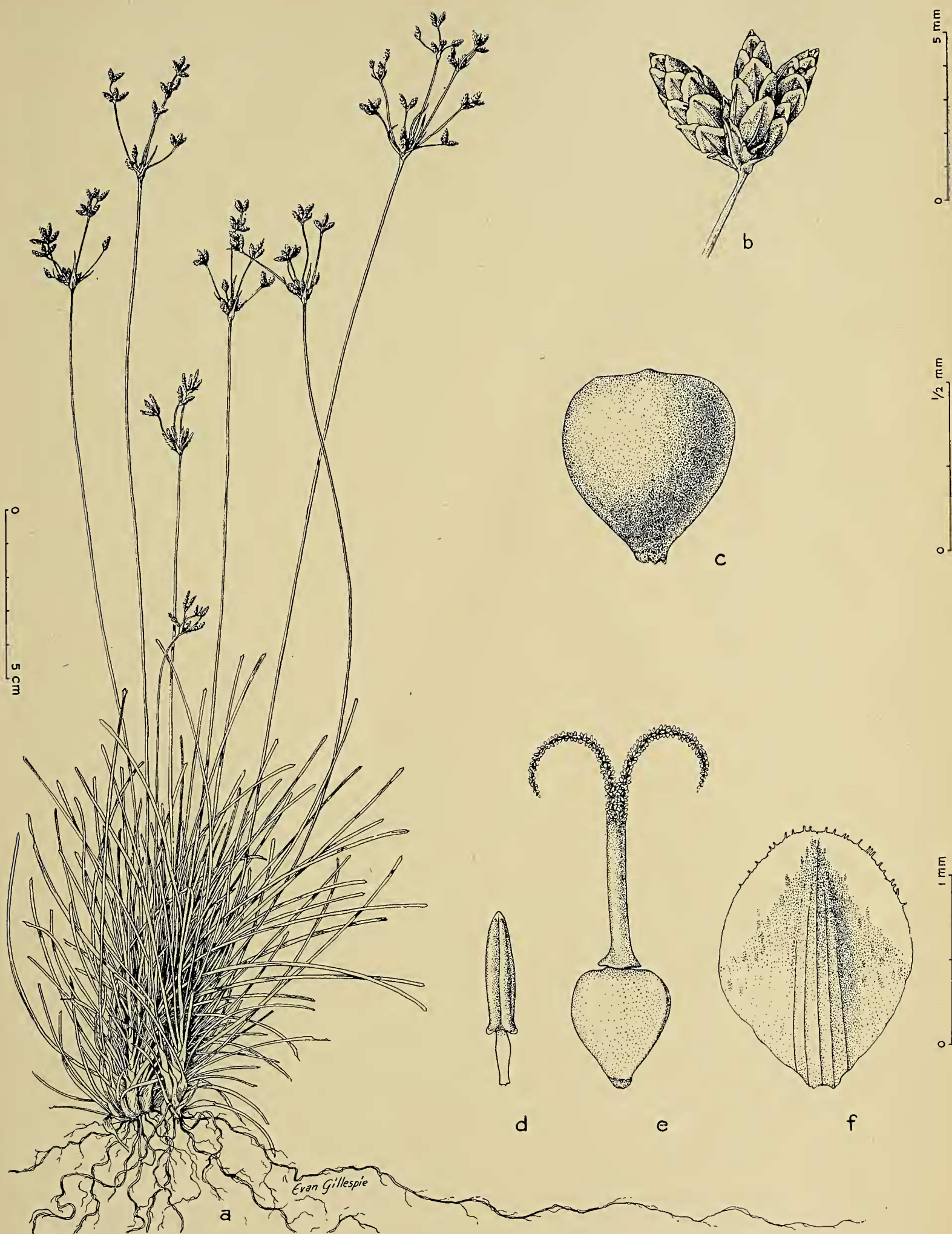


FIG. 2. *Fimbristylis atollensis* (from the type, St. John 23,721): a, Habit,  $\times \frac{1}{2}$ ; b, spikelets,  $\times 5$ ; c, achene,  $\times 50$ ; d, stamen,  $\times 25$ ; e, pistil,  $\times 25$ ; f, scale,  $\times 25$ .



or with peduncles up to 4 mm. in length, also bearing 2–4 raylets 3–18 mm. long which terminate in 3 (or 2) sessile spikelets; bractlets several, stramineous, the outer blade-bearing but shorter than the spikelet; spikelets 3–7 mm. long, 1.3–1.8 mm. wide, ovoid or lance-ovoid, acute, in age or post maturity to 10 mm. long, cylindric; rhachilla with transverse wings which are 0.5 mm. long, brown, elliptic, scarious margined; fruit scar lunate; scales spirally imbricate, 1.2–1.7 mm. long, rhomboid-suborbicular, glabrous, shining, brown except for the white hyaline upper exposed lateral margins, the midrib thickened, prominent almost to the tip, lateral veins 2–4 on a side closely parallel to the midrib, short, obscure; stamens 2, the filaments 1.2 mm. long, ligulate, hyaline; anthers 0.5–0.6 mm. long, oblong-linear, subacute; style glabrous 0.5–0.8 mm. long, dilated and conic at base; stigmas 2, diverging, 0.7–0.9 mm. long, filiform; achene 0.5–0.6 mm. long, turbinate, thick plano-convex, without ridges, lines, or mottlings, but dull fuscous and in strong light with a few shining points from lenticular epidermal cells, but the general surface dull, the base truncate, the apex broad, subtruncate, the convex side full and rounded. (Very rarely there is a flower with 3 stigmas and it produces a trigonous achene sharply angled on the distal side.)

TYPE: Marshall Islands: Eniwetok Atoll, Aniyaanii Islet, 3 m. alt., in coral sand, tufts 1 dm. across, Aug. 8, 1949, Atomic Energy Commission, Donaldson Expedition, *Harold St. John* 23,721 (Bishop Museum).

#### *Specimens Examined*

##### LINE ISLANDS

Fanning Island: generally distributed in open places, el. —7 m., July 31, 1922, *S. C. Ball* 8; on waste land around copra station, July 31, 1924, *E. Christophersen* 17; Dec., 1924, *G. P. Wilder* 3.

Washington Island: in moist soil, Aug. 13, 1924, *H. F. Bergman* 77.

Rakahanga Island: sandy soil, open ground, dry, sea level, Mar. 10, 1927, *G. P. Wilder* 536.

##### MARSHALL ISLANDS

Eniwetok Atoll: Bogon Islet, tufts on coral sand, 2 m. alt., Aug. 11, 1949, *H. St. John* 23,771; Engebi (as Engabi) Island, Aug. 21, 1944, *E. H. Bryan Jr.*; Runit Islet, rare, tufts on coral sand, 4 m. alt., Aug. 15, 1949, *H. St. John* 23,849. Also observed in 1949 by *St. John* on Aomon, Aniyaanii, Japtan, and Eniwetok Islets.

Bikini Atoll: Bikini Island, Crossroads Expedition, Mar. 30, 1946, *W. R. Taylor* 46-1098.

Rongelap Atoll: Rongelap Island, Crossroads Expedition, July 21, 1946, *W. R. Taylor* 46-1470; Eniwetok Island, June 16, 1946, *W. R. Taylor* 46-1362.

Likiep Atoll: Likiep Island, tufted, in coral gravel, common, Aug. 28, 1946, *H. St. John & R. S. Cowan* 21,776, vernacular name "përlitchman."

Ailuk Atoll: Ailuk Island, in coral sand, common, Aug. 30, 1946, *H. St. John & R. S. Cowan* 21,833, vernacular name "dilitchman"; Marme Island (south of Marappu Island), tufts on open sand, Aug. 31, 1946, *H. St. John & R. S. Cowan* 21,868.

Mejit Island: in wet *Cyrtosperma* pit, Sept. 3, 1946, *H. St. John & R. S. Cowan* 21,940, vernacular name "berelitchman." Doubtless the collection, "bei dem Händlerplatz, Meijit, (*K. Gibbon* n. 1076)," listed by *Kükenthal* (in *Engler's Bot. Jahrb.* 59: 5–6, 1924) as *F. glomerata* f. *spathacea*, will prove to be of this new species; also the record from Jaluit (*Finsch* n. 4); and perhaps that from Ponape (*Ledermann* n. 13,979).

Wotje Atoll: Ormed Island, abundant throughout island, Sept. 4, 1946, *H. St. John & R. S. Cowan* 22,039, vernacular name "drelitchman."

Aur Atoll: Tabal Island, in open sand by shore or in open woods nearby, Dec. 17, 1945, *H. St. John* 21,399, vernacular name "wujoit" [= a grass].



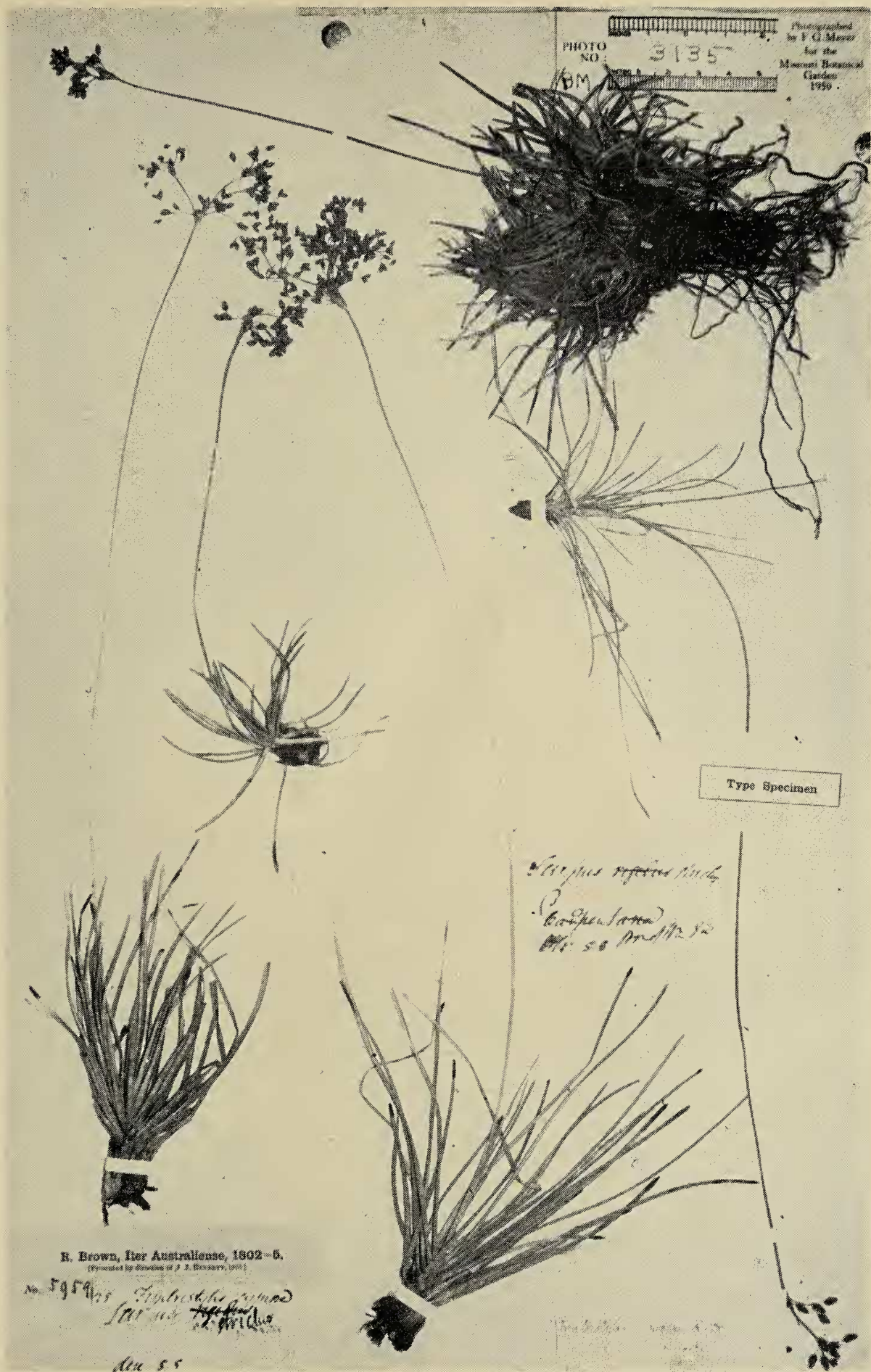


FIG. 3. *Fimbristylis cymosa* R. Br., type (Brit. Mus.), Iter Australiense 1802-5, Carpentaria, R. Brown 5,959.

Kwajalein Atoll: Ebeye Island, near s. end in garden, spontaneous, Aug. 3, 1944, *E. H. Bryan Jr.*  
Namu Atoll: Namu Island, Aug. 16, 1946, *H. St. John & R. S. Cowan* 21,607, vernacular

name "merelijiman."  
Ebon Atoll: Ebon Island, Chittakain, tufted in coral sand, abundant, Sept. 11, 1946, *H. St. John & R. S. Cowan* 22,182, vernacular name "berelitchman."



## GILBERT ISLANDS:

Tarawa Atoll, Oct. 1944, Sgt. C. E. R. Cameron.

Tabite Ue A Island [Tapeteuea Atoll]: in clumps, abundant lagoon side, perfumed roots used to perfume grass skirts, Nov. 5, 1948, K. Luomala 11, vernacular name "te uteute te mane" [=the male grass].

Rotuma Island: Huo, Oinafa District, alt. 10 ft., by shore, tufted, in crevices of sea cliffs and basalt ledges, July 26, 1938, H. St. John 19,282, vernacular name "pupu"; Hauea Meamea Island, sea cliff, tufted, in crevices of basalt, alt. 15 ft., Aug. 1, 1938, H. St. John 19,370.

## CAROLINE ISLANDS:

Kusaie Island, Mot, herb, flower brown, grows on shady soil, Jan. 26, 1936, M. Takamatsu 448.

Pingelap Island: in woods by lagoon beach, Dec. 27, 1945, H. St. John 21,491, vernacular name "rosakai."

Truk Islands: Truk, sandy soil near sea-shore, CIMA Expedition, Sept. 24, 1947, C. C. Y. Wong 129, vernacular name "ene-nikkö."

This plant is common on the atolls of the Central Pacific and has often been collected. It has customarily been identified as *F. cymosa* R. Br., but that species, described from the Gulf of Carpentaria and Prince of Wales Islands, has the spikelets single or on longer

inflorescences with less than half of them paired; scales ovate, the 3 lateral veins on each side strong; stigmas 3, and 0.5 mm. long; and the achenes oblong-obovoid, trigonous but somewhat plano-convex, whitish brown, transversely rugulose. It is a member of the section *Trichelostylis*, and the series *Glomeratae*. On the other hand, *F. atollensis* has the spikelets 3 (or 2) at a node, 1.3–1.8 mm. wide; scales rhomboid-suborbicular, the lateral veins 2–4 on a side, short, obscure, closely parallel to the midrib; stigmas 2 and 0.7–0.9 mm. long; and the achenes turbinate, thick plano-convex, dull fuscous, without ridges, lines, or mottlings. This new species falls into quite a different position in the genus, in the section *Dichelostylis* and into series B\*\* (Clarke, Kew Bul. 106, 1908). The several species in this series are strikingly different, but it seems that the closest is *F. macrostachya* Boeck. of Port Darwin, Northern Territory, Australia. This differs in having the leaves plane above; scales rigid, strongly mucronate, many striate, stramineous; ovary long stipitate; and the style densely ciliate. On the other hand, *F. atollensis* has the leaves channeled above, the scales brown, scarious, broadly obtuse, only the midrib prominent; ovary sessile, and the style glabrous.

The type of *F. cymosa* R. Br. was recently critically studied by the writer at the British Museum of Natural History in London. A photograph of the type sheet is included (Fig. 3).